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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,935	02/02/2001	Jae Sung Kim	YHK-062	7194

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EXAMINER

SAID, MANSOUR M

ART UNIT	PAPER NUMBER
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2673

6

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,935

Applicant(s)

KIM ET AL.

Examiner

MANSOUR M SAID

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 16 is/are rejected.
- 7) ☐ Claim(s) 11, 13-15 and 17-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 2. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Prior Art (hereinafter referred to as APA) in view of Ha et al. (6,255,779 B1; hereinafter referred to as Ha).**

As to claim 1, APA teaches a plasma display panel (PDP, (figure 2, (40)) having discharge cells (discharge cell, (figure 2, (44)) arranged in a matrix type (specification page 1), comprising sustaining electrodes (scanning and common electrodes, (figure 1, (16 & 17)) formed at the boundary portions between the discharge cells (specification pages 1-2).

APA does not expressly disclose that trigger electrodes formed at the inner sides of the discharge cells.

However, Ha teaches a trigger electrode (electrode, (figure 5a, (18)) (abstract, column 3, lines 17-29, column 4, lines 24-67 and column 5, lines 1-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ha's PDP display having plurality electrode into APA's PDP display so as to increase the aperture rate of the front substrate to enhance luminance (column 5, lines 1-14).

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As to claim 2, Ha teaches that the trigger electrodes (electrodes, (figures 18)) are adjacent to an to any one of the sustaining electrodes (sustaining electrode, (figure 5, (17)) formed at the boundary portions where they are formed (column 3, lines 30-49 and column 4, lines 61-67).

As to claim 3, Ha teaches that the sustaining electrodes (sustaining electrode, (figure 5, 17)) and the trigger electrodes (electrode, (figure 5, (18)) are transparent electrodes (column 5, lines 1-4).

As to claim 6, APA teaches that first barrier ribs (barrier ribs, (figure 1, (32) arranged in a direction crossing the sustaining electrodes (on page 2, APA clearly stated “the barrier ribs (figure 1, (32) arranged in parallel to the address electrode (figure 1, (24))”, since sustaining electrode and address electrode are crossing each other, therefore, APA fairly shows that (the barrier ribs, (figure 1, (32) arranged in a direction crossing the sustaining electrodes (scanning/common electrodes, (figure 1, (16-17) (specification page 2, lines 25-37).

3. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Ha as applied to claim 1 above, and further in view of Ishii et al. (6,531,995 B2; hereinafter referred to as Ishii).

As to claim 4, APA and Ha disclose all claimed limitation in claim 4 except that an electrode formed from a conductive material having a light-shielding property at the centers of the sustaining electrodes and the sustaining electrodes.

However, Ishii teaches an electrode (metal electrode, (figure 19, (132)) formed from a conductive material (metal such as, copper) having a light-shielding property at the centers of the

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sustaining electrodes (transparent electrode, (figure 19, (132)) and the sustaining electrodes (transparent electrode, (figure 19, (132)) (column 10, lines 25-40 and column 19, lines 14-38).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine Ishii's teaching having conductive material at the center of the electrode(s) into APA modified system so as to increase the versatility of the display device.

As to claim 5, Ishii teaches that first barrier ribs (partitioning walls, (figure 30, (177-177)) arranged in parallel to the sustaining electrodes (glass substrate) (column 1, lines 35-50).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Ha as applied to claim 6 above, and further in view of Matsuzaki et al. (5,939,828).

APA, HA and Ishii disclose all claimed limitation in claim 7, but omit that the first barrier ribs overlap with the bus electrodes

However, Matsuzaki discloses that the first barrier ribs overlap with the bus electrodes (figures 5a, 7a & 8a, column 15, lines 1-16 and column 16, lines 1-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Matsuzaki's device having overlap barrier ribs with electrode(s) into APA's modified so as to prevent a reduction in the degree of opening in the display cell (column 16, lines 15-20).

5. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Ishii.

As to claim 8, APA teaches that a method of driving a plasma display panel having sustaining electrodes (scanning and common electrodes, (figure 1, (16 & 17)) formed at the boundary portions between the discharge cells (specification pages 1-2 and lattice-shaped barrier ribs (barrier ribs, (figure 1, (32)) for surrounding the discharge cells including a reset period (reset interval, (figure 4, (RP)) ((specification page 2, lines 25-37), an address period and a sustaining period (specification page 4, lines 14-37 and figure 4), the method comprising the steps of applying a reset pulse (reset interval, (figure 4, (RP)) to the sustaining electrodes.

APA does not expressly disclose that the steps of applying a reset pulse to the sustaining electrodes during the reset period, a trigger electrodes formed at the inner sides of the discharge cells applying a scanning pulse to the trigger electrodes during the address period; applying a first sustaining pulse to the trigger electrodes during the sustaining period; and applying a second sustaining pulse to the sustaining electrodes in such a manner to be alternate with the first sustaining pulse.

However, Ishii fairly disclose that the steps of applying a reset pulse to the sustaining electrodes during the reset period (figures 7-8, 10, -11, 14, 23 & 26; column 11, lines 57-67; column 12, lines 59-67 and column 21, lines 10-34), a trigger electrodes (electrode, figure 24, (Y1) formed at the inner sides of the discharge cells (figures 3-4, 7-14, 19 & 24-25; column 3, lines 1-39; column 5, lines 37-67; column 7, lines 20-47 and column 10, lines 40-60) applying a scanning pulse to the trigger electrodes during the address period (figures 7-14; column 3, lines 1-39; column 5, lines 37-67 and column 7, lines 20-47); applying a first sustaining pulse to the trigger electrodes during the sustaining period (figures 7-14; column 7, lines 20-47; column 20, lines 11-24 and column 14, lines 22-33); and applying a second sustaining pulse to the sustaining

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electrodes in such a manner to be alternate with the first sustaining pulse (figures 7-14, column 11, lines 40-57, column 14 and lines 21-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ishii's teaching into APA's PDP display so as increase a number of gradations and brightness by addressing a plural display lines simultaneously d=to decrease an address period (column 2, lines 65-67).

As to claim 9, Ishii teaches that first sustaining pulse and the second sustaining pulse are set to have the same voltage (column 3, lines 49-62; column 14 and lines 21-32).

5. Claims 10, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Ishii.

As to claims 10 and 16, APA teaches that a method of driving a plasma display panel having sustaining electrodes (scanning and common electrodes, (figure 1, (16 & 17)) formed at the boundary portions between the discharge cells (specification pages 1-2 and lattice-shaped barrier ribs (barrier ribs, (figure 1, (32)) for surrounding the discharge cells including a reset period (reset interval, (figure 4, (RP)) ((specification page 2, lines 25-37), an address period (address interval, (figure 4, (AP)) and a sustaining period (sustaining interval, (figure 4, (SP)) (specification page 4, lines 14-37, Specification page 5, lines 1-13; and figures 1-4).

APA does not expressly disclose a first sub-field for applying a scanning voltage pulse to odd-numbered trigger electrodes during the address period; and a second sub-field for applying a scanning voltage pulse to even-numbered trigger electrodes during the address period.

However, Ishii teaches that a first sub-field for applying a scanning voltage pulse to odd-numbered trigger electrodes during the address period; and a second sub-field for applying a scanning voltage pulse to even-numbered trigger electrodes during the address period (figures 5 & 21, and column 12, lines 5-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ishii's teaching into APA's PDP display so as increase a number of gradations and brightness by addressing a plural display lines simultaneously d=to decrease an address period (column 2, lines 65-67).

As to claim 12, Ishii teaches wherein the first sustaining pulse, the second sustaining pulse and the third sustaining pulse are set to have the same voltage (column 3, lines 49-62; column 14 and lines 21-32).

Allowable Subject Matter

6. Claims 11, 13-15 and 17-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuriyama et al. (6,104,362) teaches that a panel display in which the number of sustaining discharge pulses is adjusted according to the quantity of display data, and a driving.

Sano et al. (6,249,264 B1) disclose that a barrier ribs the second type of the same height and material as barrier ribs of the first type are formed on a second substrate in parallel with each other along.

Hashimoto et al. (6,369,781 B2) teaches a sustain discharge which is performed a specified number of times to obtain a predetermined luminance.

Akiba (6,414,435 B1) teaches an AC drive type plasma display panel.

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Mansour M. Said** whose telephone number is **(703) 306-5411**.

The examiner can normally be reached on Monday through Thursday from 8:30 a.m. to 6:00 p.m. The examiner can also be reached on alternate Friday from 8:30 a.m. to 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Shalwala Bipin**, can be reached at **(703) 305-4938**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist)

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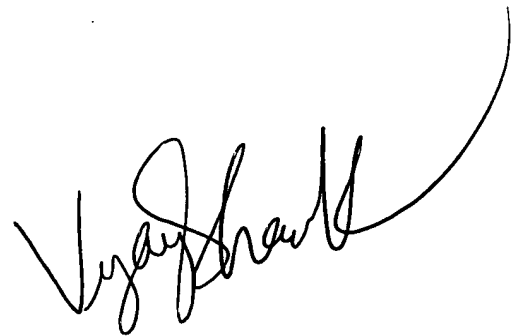
9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer service Office

Whose telephone number is (703) 306-0377.

Patent Examiner

September 6, 2003

Mansour M. Said

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a long, sweeping horizontal stroke extending to the right.

**VIJAY SHANKAR
PRIMARY EXAMINER**